

The Echinoderms Newsletter¹

No. 7. July, 1976

Prepared in the Department of Invertebrate Zoology (Echinoderms),
National Museum of Natural History, Smithsonian Institution,
Washington, D.C. 20560, U.S.A.

Here, at last, is No. 7. Yet again, we're sorry for delays, which were largely unavoidable.

At the Second Echinoderms Conference at Rovinj, it was decided that the Newsletter should continue essentially in its present form, but that volunteer regional editors might be able to send us up-to-date information on research activities in their regions, information that we might not otherwise obtain. The regional editors are listed in this issue. Also included with this issue is a revised directory, with names and addresses. There are now approximately 550 individuals on the mailing list.

We wish to thank several people who assisted in the preparation of this issue. Annette Stonework has typed the stencils for every issue of the Echinoderms Newsletter, and prepared most of the present issue. Tamara Vance, Cynthia Gust, Michael Carpenter, Linda Griffin and Katherine Stemler helped to duplicate and collate the many thousands of pages. Without the willing help of these people, this Newsletter might never have seen the light of day.

David L. Pawson
Maureen E. Downey

¹The Echinoderms Newsletter is not intended to be part of the scientific literature, and should not be cited, abstracted, or reprinted as a published document.

Second Echinoderms Conference

The Second Echinoderms Conference was held in Rovinj, Yugoslavia, September 26 to October 1, 1975. We are most grateful to Dr. Dusan Zavodnik and the "Rudjer Boskovic" Institute Center for Marine Research for arranging this highly successful conference. The accommodations were excellent, and two interesting field trips were arranged for the participants, one by bus to Limski Kanal, Porec, Beram and Pazin, and a boat trip on the R/V Vila Velebita to dredge for (what else?) echinoderms. Forty-six papers were read at the Conference, and the proceedings will be published in Thalassia.

Third Echinoderms Conference

Here are the results of the voting on the venue for the next Conference.

1. Australia (37 votes)	4. Israel (19)
2. Jamaica (33)	5. Eire (15)
3. England (27)	6. Others (2)

Thus, Australia wins by a narrow margin. The next Conference will probably be held in Sydney, and will be organised by Dr. F.W.E. Rowe, The Australian Museum, College St., Sydney, N.S.W., Australia. More information will be given in the next Newsletter.

Many correspondents have suggested that the world be divided into regions (for example, Old World, New World and Western Pacific area) and that a conference be held in one of these regions every two years. Thus, for example, a New World resident should expect a conference to be held in his region once every six years. This seems like a good idea and it might work very well. The voting above, although hardly representative of our entire mailing list, would seem to indicate that the echinoderm world might logically be divided into three parts. For the sake of argument, then, we would like to suggest that the 4th conference be held in the New World (Jamaica??) around 1980. How do you feel about it?

Regional Editors for Echinoderms Newsletter

The response to our request for volunteers to act as regional editors has been overwhelming. A total of 63 people from 27 countries or regions have offered their services. The editors are listed below. We will be happy to receive and include in future Newsletters any information that any of these editors may care to send us. Colleagues may now send their research reports direct to us or to one of the editors listed below. Many thanks for your offers of help. It will be interesting to see how this new scheme works! At the very least we hope to see more information on research in progress included in the Newsletter.

Australia - Baker, Dix (Tasmania), Lucas (North Queensland), Rowe
Austria - Fechter
Brazil - Petersen, Tommasi
Canada - Aldrich (Atlantic), Berger (Atlantic), Chia, Cousineau, Dearborn
(Nova Scotia, Newfoundland)
Chile - Larraín Prat
Czechoslovakia - Prokop
Europe - Jangoux
France - Guille
Germany - Fechter, Sato, Weber
Guam/Micronesia - Eldredge
Gulf and Caribbean area - Britton, Cutress (Puerto Rico), Kier, Lawrence
Israel - Ferber, Fishelson, Sato
Italy - Tortonese
Indo-west-Pacific area - Devaney
Japan - Oguro
Korea - Sato
Mexico - Bakus
New Zealand - Baker, McKnight, Rowe
Poland - Szymanska
Scandinavian countries - Christensen
Sweden - Bockelie, Franzen
Switzerland - Hess (paleontology)
Taiwan - Sato
United Kingdom - Binyon (London), A.M. Clark, Crump (Wales), Emson, Rose,
Tyler (Wales), Wilkie (Scotland).
U.S.A. - Bakus (Calif., Alaska), Carey (Pacific N.W., Alaska), Castro (S.
Calif.), Dearborn (N. New England), Farmanfarmaian, Horowitz (Indiana
paleontology), Kolata (midwest), Lawrence (S.E.), Macurda (midwest),
Menge, Niesen (Calif. and Pacific N.W.), Pabian (Nebraska), Parsley (S.E.),
Patent (Pacific N.W.), Phelan (Oregon), Scheutz, Serafy (mid Atlantic),
Spencer (New England), Stancky (S.E.), Strimple (central), Wagner (Alaska),
Webster (Pacific N.W.).
Yugoslavia - Metrovic, Zavodnik

Help!!!

We do not have accurate or up-to-date addresses for the people listed below. If you happen to have the correct address for any of them, please send it to us and we will restore the names to the Newsletter mailing list. Many thanks.

Acosta, Theresita	Edvardsen, Finn	Leviten, Paul
Bauer, John C.	Endelman, Losza	Malone, Mary
Birkner, Alan J.	Fernandez, Carol Mosher	Marcus, T.R.
Campbell, James	Grageda, Olga	McGinnis, M.
Clark, James F.	Harger, J.R.S.	McPherson, B.F.
Crippen, Robert	Jones, Ira	Mu, A.T.
Curkin, W.K.	Lees, Dennis	Noble, P.B.

Albuquerque, Maria da Natividade

Miscellany

1. Placement Service: several people have suggested that those seeking employment in the field of echinoderm biology might advertise in the Newsletter, and that institutions and individuals who are seeking employees or graduate students might also advertise here. We are willing to include brief notices of this type on a trial basis.
2. Translations for sale or exchange: some of you who are as unskilled in foreign languages as we may have had important publications translated from one language to another for your own convenience. If you are willing to send copies of these to interested colleagues, please let us know what you have, what language the paper has been translated into, and what the cost will be.

Patton has or will have soon the following publications:

Witting, A. 1949. Versuch einer Neuordnung der Familie Cucumariidae. Zool. Syst. 78:404-470. Translated into English. Cost of copying not yet determined.

Ilyayev, G. 1970. Revision of the holothurian genus Myriptrochus. Trudy Inst. Oceanol. 86:458-486. Translated into English. No charge.

EINAR BRUN, died July 13, 1976.

Dr. Einar Brun, known for his work on echinoderm populations, was killed in a light-plane crash on July 13, 1976.

Einar graduated from the University of Oslo, and then took his doctorate at the University of Liverpool. His thesis work dealt with the distribution and ecology of echinoderms of the Isle of Man. His work was in many ways a model for a project using SCUBA techniques to study the benthos, and his underwater photographs were superb.

He returned to Norway in 1969 to work at the Tromsø Museum and Marine Laboratory, of which he became Director in 1974. He attended the 1975 Echinoderms Conference in Rovinj, Yugoslavia, where he read a paper on the taxonomy of the genus Henricia.

In addition to his work with the echinoderms, Einar's research interests included biology of sea-birds, in which field he was the Norwegian authority, and possibilities of salmon farming in the ocean.

The Bruns lived on Kvaløya, the neighbouring island to Tromsøya. Einar's small Piper Cub, on floats, was a major research tool, enabling him to reach his sea-bird colonies, and it was while flying from Tromsø to Bardu that he encountered the bad weather that caused the tragic accident.

Einar was an engaging person, and his ability and charm, his drive and energy, had ensured him a place as a leading biologist in his country. He initiated many exciting projects in the north of Norway, a region rich with biological problems awaiting such as he to galvanise research effort. He will be greatly missed.

- David Nichols.

JON WEBER, died June 1, 1976.

Jon N. Weber, well known for his work on the echinoderm skeleton, died on June 1, 1976.

Jon received his M.Sc. and Ph.D. in geochemistry at the University of Toronto. He then moved to Pennsylvania State University, where he became Professor of Marine Geology.

His recent tragic death represents a loss to echinoderm workers as well as to students of other groups. As an isotope geochemist, he had had virtually no biological or paleontological training, yet he was quick to learn what was necessary to work with biological materials and problems, and he was very effective in collaboration with specialists in fields unfamiliar to him. Through his isotope work, he made important contributions to problems of the physiology of the calcification process, not only in echinoderms, but also in corals and mollusks. His isotopic and chemical analyses were so numerous and carefully done that he was able to apply masses of data to subtle problems which had previously defied solution. He was a truly broad scientist who will be sorely missed by workers in several disciplines.

- David M. Raup

Suggestions and Requests

BAKUS - would appreciate information on echinoderms that are toxic to fishes (biochemistry to behavior).

BERGER - would be pleased to provide interested people with a copy of a bibliography of the ciliate protozoans which inhabit echinoids. Any data on ciliates inhabiting urchins from S. Atlantic coasts of Africa and South America, Antarctica, Australia and New Zealand would be most welcome.

BROOKS - would like to have recent records or specimens of N.E. Pacific holothurians and any literature recently published.

DARTNALL - would like to hear from workers who have research interests in the area of Darwin, Australia. Also, he would be grateful to receive reprints of echinoderm papers to help build up his small institutional library.

EYLERS - interested in observations on starfish migrations.

HAUGH - would like to have information or bulk samples of disarticulated material containing well-preserved crinoid arm ossicles from any horizon in the Paleozoic.

KELLER - seeks unpublished information on distribution of echinoids in sea grass environments.

LEWIS - seeks any information (other than that in Boolcotian, 1966) on distribution and feeding of echinoids, particularly Echinus.

MARCUS - wishes to have data on the distribution of Arbacia punctulata; interested in obtaining specimens (alive) from as many different localities as possible; seeks advice on possible collecting sites.

NIESEN - would welcome exchange of information and ideas on variation in growth rate and test morphology with habitat in irregular urchins.

SIBUET - seeks information on reproductive periodicities in abyssal echinoderms; also interested in age determination of individual ophiuroids (using some indicator such as growth bands ?).

SPRINKLE - would like to know the whereabouts of any well preserved echinoderms from the Bromide Formation (Middle Ordovician) of southern Oklahoma in museums or private collections for inclusion in a monographic study of this fauna.

WAHLMAN - would like to purchase Bassler, R.S. and M.W. Moodey, 1943, Bibliographic and faunal index of Paleozoic pelmatozoan echinoderms. Geol. Soc. America Special Paper 45, 733 pp.

WARNER - would like to learn of any observations on suspension feeding in euryalous brittle-stars other than basket stars; also any records of stomach contents in these animals.

WELLS - urges more applied studies on effects of contaminants on various aspects of biology of echinoderms, especially on reproductive activity and larval stages.

YAMAGUCHI - seeks information on natural parthenogenesis in echinoderms.

AND:

IRIMURA - would like to receive ophiuroids of the families Ophiacanthidae, Amphiuridae and Ophiomyxidae for systematic study; exchange of specimens welcomed.

KRISHNAN - would like to have references or papers covering aspects of reproductive biology (including ultrastructural studies of gonads) in tropical as well as temperate holothurians, in order to update an article on reproductive biology of holothurians.

LAWRENCE - will send to interested people for \$1.50 (copying and postage) the complete list of approximately 250 titles of theses and dissertations dealing with echinoderms.

Current Research Projects

ARNAUD - Pelecypods associated with antarctic cidaroid echinoids; ecology and adaptations in antarctic and subantarctic marine benthic organisms.

ATWOOD - Fine structure of echinoderm spermatozoa and eggs; fertilization in holothurians.

AUSICH - Functional morphology of Pisocrinus and Parapisocrinus.

BERGER - Biology of echinoid-inhabiting ciliate Protozoa; systematics, morphometric variation; intraintestinal distribution, zoogeography.

BELL - Systematics and functional morphology of cyathocystid and pyrgocystid edrioasteroids; nature of attachment and of attachment sites of edrioasteroids; taxonomic and morphologic studies of assorted edrioasteroids.

BERNASCONI - Ophiuroids of the coast of Argentina (with D'Agostino).

BROOKS - Holothurians of the north-east Pacific; distribution, ecology, taxonomy.

BUNDRECK - Reproductive biology of Californian ophiuroids, particularly Ophiothrix spiculata, Amphiodia occidentalis, and Amphipholis spp.

CHAUVEL - Diploporitid cystoids (Maroc, Massifarmoricain, Espagne); carpoids (Massif armoricain).

CLARK, A.M. - Echinoderms of Amsterdam and St. Paul Island; taxonomy of some Poraniidae (Asteroidea) with reduced skeletons; deep-water Atlantic crinoids.

DARTNALL - Australian and Indo-Pacific Asterinidae. Echinoderm fauna of vicinity of Darwin, Australia.

DAYTON - Nearshore ecology.

DEARBORN - Food and feeding ecology of asteroids and ophiuroids from the Arctic, Antarctic and Gulf of Maine; taxonomy and ecology of Antarctic crinoids.

RIX - Background study on commercial utilization of Heliocidaris erythrogramma in Tasmania, Australia; breeding cycles, gonad yields.

DOWNEY - Asteroids of the Atlantic Ocean (with A.M. Clark); reproduction of deep-sea asteroids.

ELLINGTON - Carbohydrate metabolism in holothurians; enzyme polymorphisms in echinoderms.

ENGSTROM - Effects of predation by Cassis tuberosa on regular sea urchins in sea grass beds.

EYLERS - Molecular basis of the mechanical properties of holothurian body wall.

FECHTER - Echinoderms collected by the R/V Meteor.

GALE - Cretaceous Asteroidea and Crinoidea from western Europe; taxonomy, morphology, evolution and paleoecology.

GIESE - Physiology of echinoderm (asteroid, echinoid) body wall.

GUILLE - Ophiuroid fauna of Madagascar (with Cherbonnier); echinoderms of Kerguelen Island; benthic ecology of continental plateau of Kerguelen.

HAUDE - Morphology of jaw apparatus of eleutherozoan echinoderms; crinoid stems; Devonian echinoderms; Paleoecology of Upper Silurian Scyphocrinites layers.

HAUGH - Nervous and muscle systems of Paleozoic crinoids; "paleophysiology" and a theory of dynamic balance and sensory organs in Mississippian camerata crinoids; coelomic organization of the Camerata as evidence of echinoderm ancestry and evolution.

HENDERSON - Cenozoic Australasian clypeasteroid echinoids of the Family Arachnoididae; Late Camrian eocrinoids from western Queensland, Australia.

HILL - Cloacal rhythmicity and local degeneration in holothurians.

HYLANDER - Comparative aspects of fertilization and mechanisms of species-specificity; ultrastructure of echinoderm gametes and events of fertilization.

JAMES - Shallow-water echinoderms of the Andaman Islands.

JANGOUX - Structure and function of digestive systems of seastars and sea urchins; echinoderms of Africa south of Sahara.

KANATANI - Mechanisms of oocyte maturation in starfish.

KELLER - Population dynamics of Jamaican Tripneustes ventricosus and Lytechinus variegatus: the role of these species and fishes as structuring forces of the infauna and seagrass communities.

KOBAYASHI - Marine pollution bioassay by sea urchin eggs.

KOGO - Crinoid fauna of Japanese and neighboring waters.

KOLATA - Solutan carpoid family Iowacystidae; crinoids from Middle Ordovician Bromide Formation of Oklahoma (with Sprinkle and others); Middle Ordovician echinoderms from upper Mississippi River valley (with Strimple and others).

KOMATSU - Development and metamorphosis of sea stars.

KYTE - Northeastern Pacific Ophiuroidea; systematics and deep-sea ecology. Gorgonocephalus, systematics and some aspects of biology; Panama ophiuroids, systematics.

LEWIS - Ecology of subtidal populations of Echinus.

LIDDELL - Niche structuring of shallow water Caribbean crinoids; biostratinomy of Recent and fossil echinoderms, particularly crinoids; paleoecology of Ordovician and Silurian echinoderms.

MACKIE - Distribution of steroidal saponins in the Echinodermata and their ecological significance; mode of action of saponins on cell membranes.

MALUF - Echinoderm diversity, Gulf of California.

MARCUS, N.H. - Population genetics of Arbacia punctulata; effect of temperature upon isozyme production in the larval phase of A. punctulata.

MARSH - Systematics of Western Australian asteroids; revision of the genus Hacelia (with Rowe).

MEYER - Ecology and functional morphology of Indo-Pacific crinoids (with Macurda); association of a polychaete with the ophiuroid Ophiocoma echinata (with Hendler); biological and physical fluctuations in the reef flat communities of Atlantic Panama.

MLADENOV - Reproductive biology of Ophiothrix oerstedi, Ophiothrix suensonii, Ophiocoma echinata.

MUKAI - Ecology, population dynamics and feeding preferences in sea-stars.

MUSCAT - Growth and reproduction of Ophioplacus esmarki.

NAVEN - Ecology of Asterias rubens in parts of Kiel Bay.

NESTLER - Regular echinoids of the Upper Cretaceous.

NIESEN - Variation in growth rate and test morphology in Dendraster excentricus populations.

OHTA - Ecological investigations of deep-sea megalobenthos; quantitative estimation and analysis of spatial patterns using deep-sea stereocamera.

OLDFIELD - Surface fine structure of echinoids; taxonomic applications.

OLVER - Taxonomy and paleoecology of British Jurassic irregular echinoids.

PARSLEY - North American Mitrata (with Caster); primitive echinoderms of the Bromide Formation of Oklahoma; echinoderms of the Lexington Limestone of Kentucky.

PAUL - Simulation of respiratory exchange in fossil echinoderms; British Ordovician cystoids; Scandinavian Ordovician echinoderms; North American Silurian Rhombifera.

PAWSON - Antarctic and Indo-west-Pacific holothurians, systematics.

PEARSE - Kelp forest ecology; echinoid reproduction.

PHELAN - Processes by which accessory tube feet and lateral water vessels are added to clypeasteroid plates with growth.

PROKOP - Bohemian Devonian echinoderms, mainly crinoids from the boundary lower-middle Devonian; systematics, biostratigraphy, paleoecology.

ROSE - Mediterranean Tertiary echinoids; paleoecology of Jurassic irregular echinoids.

ROUX - Post-Paleozoic stalked crinoids: microstructure and ontogeny of the stem; stalked crinoids of the Bay of Biscay.

RUTMAN - Reproductive activity of feather-stars Lamprometra klunzingeri (Hartlaub) and Hathrometra saviignyi (Müller) from the Gulf of Eilat (Red Sea).

SANCHEZ - Comparison of the organization of surface currents due to ciliary action in asteroids.

SCHEIBLING - Ecology of geographically separated populations of Oreaster reticulatus in the Grenadines: population structure, distribution, feeding and reproductive cycle.

SHAFFER - Ophiuroids; salinity tolerance of Ophiothrix angulata.

SHIRAI - Mechanisms of oocyte maturation in starfish.

SIBUET - Ecology of abyssal echinoderms in the Bay of Biscay, including reproductive periodicities of some ophiuroids; the asteroid genus Hymenaster in the Atlantic Ocean.

SINGLETARY - Biology and ecology of Leptosynapta inhaerens.

SLOAN - Predatory behavior of the British sunstar Crossaster papposus.

SPEEL - Antarctic crinoids; statistical analysis of morphological variation in crinoids; coastal survey of marine invertebrates from Goldsboro Bay to Calais, Maine.

STANCYK - Larval nutrition; population dynamics of estuarine ophiuroids.

STRATHMANN - Limitations of ciliary feeding mechanisms in larvae and consequences for larval morphology; limitations on distribution of ambulacra; adaptive aspects of complex life cycles.

STRIMPLE - Pennsylvanian and Mississippian crinoids; Permian crinoids from southwest Texas; upper Cambrian echinoderms of SE Missouri (with Sprinkle); solutan carpoids (with Kolata and Leverson); Moscovicrinus from Belitung Island, Indonesia (with Yancey); Ordovician echinoderms from Iowa and Illinois.

SUMMERS - Investigations of mechanisms controlling species-specificity of fertilization.

TAKASHIMA - Cytochemistry in oogenesis, including radioautography and X-ray microanalysis.

THOMAS - Atlantic ophiuroids; Ophiopsila, Ophiura, Astroschema, Ophiomusium, Cphiacantha and related genera.

THOMPSON, G.B. - Distribution and abundance of echinoderms, especially sea urchins, in Hong Kong coastal waters, with particular reference to influences of pollution.

TOWN - Biology and ecology of the New Zealand sea-star Astrostole scabra, with particular reference to breeding cycle, physiological tolerances, population dynamics.

TURNER - Organic composition of echinoderm eggs; changes in organic composition of echinoderm embryos and larvae during development; ultrastructure and function of epidermal glands of juvenile Synapta hydriformis during intracoelomic incubation; intra-ossicle resorption of calcite.

UBAGIS - The genus Abacocrinus (Crinoidea, Camerata) from the Silurian of Gotland; systematic description of some new Stylophora.

VOOGT - Reproductive physiology of Asterias rubens; storage and release of lipids; sterol and steroid metabolism. (Together with Oudejans, Broertjes and Schoenmakers).

WAHLMAN - Cystoids and crinoids from Middle Silurian reefs in Indiana and Ohio; stratigraphic occurrence and paleoecology of the Upper Ordovician cystoid Lepadocystis moorei (Meek).

WARNER - Suspension feeding in echinoderms; dense populations of echinoderms.

WEBER - Chemical composition, isotopic composition, mechanical properties and microstructural characteristics of skeletal calcites deposited by echinoderms; replication of echinoderm skeletal pore microstructures into ceramic, polymer, metal, and composite biomaterials for prosthetic implant applications in humans.

WELCH - Carboniferous crinoids; functional morphology of crinoids.

WELLS - Use of Strongylocentrotus droebachiensis as a test organism in acute toxicity bioassays with industrial effluents discharged into coastal areas.

YAMAGUCHI - Larval development and geographical distribution of coral reef asteroids; life history of the parthenogenetic asteroid Ophidiaster granifer Lütken; population structure, spawning and growth of the coral reef asteroid Linckia laevigata; reproductive strategies of coral reef asteroids.

YENSEN - Ecology of sunstar Heliaster kubinji, Sonora, Mexico.

Theses and Dissertations

Addendum to the lists of Ph.D. Dissertations and Masters' Theses concerning echinoderms. Previous lists published in the Newsletter: No. 3 (April 1971); No. 4 (December 1972); No. 6 (April 1975). Prepared by John M. Lawrence.

Ph.D. Dissertations:

Annala, J. H. 1974. Foraging strategies and population effects of Asterias rubens and Nucella lapillus. Univ. of New. Hampshire.

Anderson, C.L.R. 1974. Determination of tubulin pool size and patterns of synthesis during early sea urchin development. Purdue.

Asterita, H.L. 1962. Pressure-temperature studies on the hyaline membrane of sea urchin eggs. New York U.

Badman, W.S. 1968. Serological studies of embryogenesis in echinoids. U. of Florida.

Berry, C.T. 1934. Miocene and Recent Ophiura skeletons. Johns Hopkins.

Boylan, E.S. 1972. Aspects of gene activity during oogenesis in the amphibian Xenopus laevis and the starfish, Asterias forbesi. Cornell.

Brandriff, B.F. 1975. Parthenogenesis in the sea urchin Lytechinus pictus. U. of California, Santa Cruz.

Brehm, P.H. 1975. Bioluminescence: the anatomy and physiology of its nervous control in Ophiopsila californica (Echinodermata: Ophiuroidae). U. of California, Los Angeles.

Brett, C.E. 1963. Relationships between marine invertebrate infauna distribution and sediment type in Bogue Sound, North Carolina. U. of North Carolina. (Includes Ophiura and Moira).

Brower, J.C. 1965. Evolution and Classification of primitive actinocrinitids. U. of Wisconsin.

Cameron, R.A. 1975. The initiation and early events of metamorphosis of sea urchins. U. of California, Santa Cruz.

Candelas, G.C. 1966. A study of sea urchin polyribosomes in their relation to the control of protein synthesis. U. of Miami.

Case, S.F. 1974. Dynamic properties of chromosomal D.N.A. isolated from sea urchin embryos. U. Southern California.

Chase, D.G. 1967. Inhibition of the cortical reaction with high hydrostatic pressure and its effects on the fertilization and early development of sea urchins. U. of Washington.

Cochran, R.C. 1974. Spawning induced by radial nerve and gonad factors during the temperature-regulated reproductive cycle of the purple sea urchin, Strongylocentrotus purpuratus (Stimpson). U. of California, Los Angeles.

Cohen, H. 1968. Sea urchin polysomes and their function during embryogenesis. U. of Miami.

Colon, D. 1974. Comparison of the biological activities of crude and purified holothurin from the tubules of the Bahamian sea cucumber Actinopyga agassizi Selenka. New York U.

Davidson, J.M. 1974. On the role of the epithelial basal lamina in echinoid morphogenesis. Stanford.

Dubroff, L.M. 1975. Molecular classes of heterogeneous nuclear R.N.A. in sea urchin embryos. U. of Pennsylvania.

Eckberg, W.R. 1975. Altered pattern of gene activity in abnormal sea urchin morphogenesis. Michigan State U.

Elder, C. 1912. The relation of the zona pelludida to the formation of the fertilization membrane in the egg of the sea urchin (Strongylocentrotus purpuratus). U. of California, Berkeley.

Engstrom, N.A. 1974. Population dynamics and prey-predator relations of a dendrochordate holothurian, Cucumaria lubrica, and sea stars in the genus Solaster. U. of Washington.

Estes, J.A. 1974. Population numbers, feeding behavior and the ecological importance of sea otters in the western Aleutian islands, Alaska. U. of Arizona. (Includes effect of predation on Strongylocentrotus)

Wylers, J.P. 1975. Functional morphology of the skeleto-muscular system of the starfish, Asterias forbesi. Duke.

Fowler, J.L. 1972. Distribution of magnesium and strontium in the skeletons of model regular echinoids from the United States Atlantic coast and the Caribbean Sea. Indiana U.

Fry, H. 1925. Asters in artificial parthenogenesis. I. The origin of the amphiasis in eggs of Echinorachnius parma. Columbia.

George, J.F. 1967. Polysome differences during the first division cycle of the sea urchin egg. U. of Miami.

Goldstein, S.F. 1968. Local activation and inactivation experiments on flagella. California Inst. of Technology. ("sea urchins")

Hand, G. 1967. Correlations between germ layer differentiation and sequential synthesis of ribonucleic acid during embryogenesis of the starfish Asterias forbesi. U. of North Carolina.

Hanson, J.C. 1968. The effects of versene on dividing sea urchin eggs. Oregon State U.

Hart, P. 1967. The effect of spermatozoan senescence on embryonic mortality in Rana pipiens and Arbacia punctulata. U. of Illinois.

Hartmann, J.F. 1968. The isolated mitotic apparatus: studies on nucleo-proteins. U. of Toronto.

Hibbard, H. 1921. Cytoplasmic inclusions in the egg of Echinorachnius parma. Bryn Mawr.

Hudson, J.L. 1974. Translational modulation of protein synthesis by sea urchin transfer R.N.A. U. of Miami.

Karlson, R.H. 1975. The effects of predation by the sea urchin, Arbacia punctulata, on a marine epibenthic community. Duke.

Kastendiek, J.E. 1975. The role of behavior and interspecific interactions in determining the distribution and abundance of Renilla kollikeri Pfeffer, a member of a subtidal sand bottom community. U. of California, Los Angeles. (includes roles of Dendraster and Astropecten).

Kew, W.S.W. 1917. Cretaceous and Cenozoic Echinoidea of the Pacific Coast of North America. U. of California, Berkeley.

Krischer, K.N. 1967. Studies in proteolytic enzymes in the sea urchin egg. U. of Miami.

Low, C.J. 1975. The effect of grouping on Strongylocentrotus franciscanus, the giant red sea urchin, on its population biology. U. of British Columbia.

Macurda, D.B. 1963. Studies on the blastoid genus Orophocrinus. U. of Wisconsin.

Mayo, P. 1974. Ecological, chemical and behavioural studies of avoidance responses in sea-stars. U. of Aberdeen.

Mastrangelo, M.F. 1965. A study of the vegetalizing action of tyrosine on the sea urchin embryo. Yale.

Meeker, G.L. 1968. Some effects of intracellular potassium deficiency on cleavage in echinoid eggs. Washington State U.

Myers, A.C. 1973. Sediment reworking, tube building, and burrowing in a shallow subtidal marine bottom community: rates and effect. U. Rhode Island.

Mundell, R.D. 1965. Immunochemical studies on the starfish oocyte nucleus. U. of Pittsburgh.

Nicotri, M.E. 1974. Resource partitioning, grazing activities and influence of the microflora by intertidal limpets. U. of Washington (includes Leptasterias, Pisaster).

Niesen, T.M. 1973. Population and reproductive biology of the six-rayed sea star Leptasterias hexactis on the protected outer coast. U. of Oregon.

Ozaki, H. 1975. Differentiation in esterases in the development of echinoderms and their hybrids. U. of Washington.

Perkins, D.L. 1968. The response of unfertilized sea urchin eggs to continuous direct current stimulation. U. of California, Los Angeles.

Philibert, D.W. 1974. Distance chemoreception and avoidance of the predator starfish Pisaster ochraceus by the gastropods Acmaea (ol) primatula and Acmaea (Notoacmaea) scutum. Stanford.

Pickering, R.M. 1966. Correlation of magnesium uptake with development and protein synthesis in embryos of Strongylocentrotus purpuratus. U. of California, Berkeley.

Porter, J.W. 1973. Biological, physical and historical forces structuring coral reef communities on opposite sides of the isthmus of Panama. Yale. (Includes Acanthaster)

Rokop, W.J. 1975. Breeding patterns in the deep sea. U. of California, San Diego. (Includes Ophiomusium, Ophiacantha).

Rutherford, J.C. 1975. Electrophoretic, morphological and reproductive variation in the sea cucumber Cucumaria pseudocurata. U. of California Berkeley.

Singh, M.T. 1974. The nature, distribution and function of steroid glycosides in the starfish, Marthasterias glacialis. U. of Aberdeen.

Slater, J.W. 1967. On the role of R.N.A. in early echinoid embryogenesis. U. of Illinois.

Slaboda, R.D. 1974. Cyclic A.M.P. and microtubule assembly in the sea urchin embryo. Rensselaer Polytechnic Inst.

Smith, M.D. 1965. Genetic control of macromolecular synthesis during regulating and mosaic development. Johns Hopkins.

Smisor, J.S. 1931. A study of the echinoid fragments in the Cretaceous rocks of Texas. Princeton.

Sofer, M.H. 1967. Protein synthesis in the sea urchin egg during the first division cycle. U. of Miami.

Tagner, M.J. 1974. Sea urchin sperm-egg interactions and the block against polyspermy: a scanning electron microscope and experimental study. U. of California, San Diego.

Therriault, C.E. 1926. The origin and nature of cleavage centers in echinoderm eggs. An experimental and cytological study of astral phenomena in artificial parthenogenesis of sea urchin eggs. Columbia U.

Urbach, R.J. 1974. Metabolic adjustment to temperature in Strongylocentrotus purpuratus (Stimpson). Oregon State U.

Vacquier, V.D. 1968. The twinning of echinoid embryos by treatment with dithiothreitol and the structural basis for the interaction of blastomeres. U. of California, Berkeley.

Verhaegen, J.A. 1965. A comparison of fine structural and functional changes during development and cleavage in regulative and mosaic embryos. U. of Illinois.

Weld, J.E. 1974. The effects of benzimidazole and certain enzymes on sea urchin and sand dollar zygotes. Washington State U.

Webster, S.K. 1972. The respiratory physiology of Strongylocentrotus purpuratus Stimpson with particular reference to the reproductive cycle. Stanford.

Yingst, J.Y. 1974. The utilization of organic detritus and associated microorganisms by Parastichopus parvimensis, a benthic deposit-feeding holothurian. U. of Southern California.

Master's Theses:

Ahearn, G.A. 1967. Phosphorus kinetics in Holothuria atra. U. of Hawaii.

Bader, R.G. 1952. A quantitative study of physical, chemical and biological variants of modern sediments. Chicago. (Includes Echinarchnus).

Brooks, E.J. 1973. Some aspects of the taxonomy and biology of the genus Leptosynapta (Holothuroidea) in British Columbia. U. of Victoria, B.C.

Caldwell, J. 1972. Substrate selection by Mellita quinquiesperforata. U. of Florida.

Engstrom, N.A. 1970. The reproductive cycles, systematic status, and general biology of Holothuria (Halodeima) floridana Pourtales, 1859 and H. (H.) mexicana Ludwig, 1875. U. of Miami.

Greer, D.L. 1961. Feeding behavior and morphology of the digestive system of the sea star Pycnopodia helianthoides (Brandt) Stimpson. U. of Washington

Gregg, K.W. 1966. A comparison of fertilizin and cytofertilizin from eggs of Artacia punctulata. Emory U.

Hylander, B.L. 1975. An ultrastructural analysis of the gametes and the early events of gamete interaction. U. of Maine.

Muscat, A.M. 1975. Reproduction and growth in the ophiuroid Canionereis annulata. San Diego State U.

O'Connell, M.G. 1971. The fine structure of venom glands in globiferous pedicellariae from the purple sea urchin, Strongylocentrotus purpuratus (Stimpson). California State U., Long Beach.

Reinschmidt, D.C. 1969. Regeneration in the sea cucumber Thyonella gemmata. Florida State U.

Rutherford, J.C. 1971. Population biology of the holothurian Eumaria pseudocurata. U. of California, Berkeley.

Wahlman, G. 1974. Stratigraphy, structure, paleontology and paleoecology of the Silurian Reef at Montpelier, Indiana. Indiana U.

Waller, C.W. 1973. Morphology and histology of the reproductive system of Asterias vulgaris. Cornell.

Wells, P.G. 1969. Relationship of two physicochemical parameters to the intraintestinal distribution of the entocommensal ciliate fauna of Strongylocentrotus spp. U. of Toronto.

More Current Research Projects

BLANKENSHIP - deep-sea holothurians off California.

BRETT - revision of classification of Stephanocrinus (with Breimer); Ordovician hardground echinoderm communities of Kirkfield, Ontario area; echinoderm paleoecology of Middle Silurian Waldron Shale of Indiana and Tennessee.

CARCAMO - chilean asteroids.

IRIMURA - ophiuroids of Prince Harald Coast, Antarctica; ophiuroids of Sagami Bay.

CHAFFEE - ecology and morphology of asteroids.

KRISHNAN - reproductive and nutritional cycles in the echinoid Salmacis virgulata.

SHIRLEY - systematics and ecology of Gulf of Mexico echinoderms.

TORTONESE - echinoderms of the northern Red Sea; echinoderms of Somaliland.

Address Change

Green, Jeffrey D., 50 Greenfield St., Buffalo, New York 14214.

Additions to Mailing List

Chaffee, C. - Department of Invertebrate Zoology, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118.

Shirley, Thomas C. - Department of Zoology, Louisiana State University, Baton Rouge, Louisiana 70893.

Recent Publications and Papers in Press

This list is based upon Newsletter replies plus reprints received. Please note that many of the papers listed below as "in press" will already have been published.

ARNAUD, P.M., 1974. Contribution a la bionomie marine benthique des regions antarctiques et subantarctiques. *Tethys*, 6 (3): 465-656.

ATWOOD, D.G., 1974. Fine structure of spermatogonia, spermatocytes and spermatids of the sea cucumbers Cucumaria lubrica and Leptosynapta clarki (Echinodermata: Holothuroidea). *Can. J. Zool.*, 52: 1389-1396.

_____, 1974. Fine structure of an elongated dorsoventrally compressed echinoderm (Holothuroidea) spermatozoon. *J. Morph.* 145: 189-203.

_____, B.J. CRANFORD and G.D. BRAYBROOK, in press. A technique for processing mucous coated marine invertebrate spermatozoa for scanning electron microscopy. *J. Microscopy*.

_____, and F.S. Chia, 1974. Fine structure of an unusual spermatozoon of a brooding sea cucumber, Cucumaria lubrica. *Canadian Jour. of Zool.* 52 (4): 519-523.

BAIRD, R.H., ed., 1974. *Bech-De-Mer of the South Pacific Islands*, a Handbook for Fishermen.

BAKER, A.N. and L.M. MARSH, in press. The rediscovery of Halityle regularis Fisher (Echinodermata: Asteroidea). Records of the Western Australian Museum.

BAKUS, G.J., 1974. Toxicity in holothurians: a geographical pattern. *Biotropica* 6 (4): 229-236.

_____, 1975. Marine zonation and ecology of Cocos Island, off Central America. *Atoll Res. Bull.* 179: 1-9.

_____, and GERARDO GREEN, 1974. Toxicity in sponges and holothurian: A geographic pattern. *Science*, 185: 951-953.

BELL, B.M., 1976. A study of North American Edrioasteroidea. *New York State Museum Memoir* 21, 446 pp.

_____, 1976. Ontogeny and systematics of Timeischytes casteri sp. nov.: An enigmatic Devonian edrioasteroid. Bulletins of American Paleontology, 67 (287): 33-56.

_____, in press. Ordovician Edrioasteroidea of Kentucky. In Ordovician Paleontology of Kentucky, U.S.G.S. Professional Paper.

_____, in press. Respiratory schemes in the Class Edrioasteroidea. Journal of Paleontology.

_____, and M.S. PETERSEN, in press. An edrioasteroid from the Guilmette Formation at Wendover, Utah-Nevada.

_____, H.L. STRIMPLE and C.O. LEVORSON, in press. Edrioasteroids (Echinodermata) of the Maquoketa Formation of Iowa. Iowa Acad. Sci. 12.

BELMAN, B. and A.C. GIESE, 1974. Oxygen consumption of an asteroid and an echinoid from the Antarctic. Biol. Bull. 146: 157-164.

BELYAEV, G.M., 1974. A new family of abyssal starfishes. Institute of Oceanology, USSR Academy of Sciences (Moscow), 53 (10): 1502-1508.

BENGTSON, S., 1970. The Lower Cambrian fossil Tommotia. Lethaia, 3: 363-392.

BIRKELAND, C., D.L. MEYER, J.P. STAMES, and C.L. EUFORD, 1975. Subtidal communities of Malpelo Island. In: The Biological Investigation of Malpelo Island, Colombia. Smithsonian Contr. to Zool., 176: 55-68.

BLAKE, D.B., 1975. A new West American Miocene species of the modern Australian ophiuroid Ophiocrossota. Journal of Paleontology 49 (3): 501-507.

BREIMER, A. and G. UBAGHS, 1975. A critical comment on the classification of the pelmatozoan echinoderms. Koninkl. Nederl. Akad. v. Wetenschappen, Proc. B, 77 (5): 308-417.

_____, and A.J. DOP, 1975. An anatomic and taxonomic study of some Lower and Middle Devonian blastoids from Europe and North America. I. Akademie Van Wetenschappen-Amsterdam. 78 (1): 40-61.

_____, and G.D. WEBSTER, 1975. A further contribution to the Paleogeology and fossil stalked crinoids. Akademie Van Wetenschappen Amsterdam. Series B, 78 (3): 149-167.

BRITO, I.M. and L. RAMIRES, 1974. Contribuicao ao Conhecimento dos Equinoides Albianos (Cretaceo Inferior) do Brasil. An. Acad. brasil. Cienc., 46 (2): 275-282.

, 1974. Equinoides do Mioceno Inferior do Norte do Brasil. An. Acad. brasil. Cienc. 46 (2): 263-274.

BROADHEAD, T.W., 1974. Reevaluation of the morphology of Amecystis laevis (Raymond). Jour. Paleont. 48: 670-673.

and H.L. STRIMPLE, in press. Respiration in the vagrant Ordovician cystoid, Amecystis. Paleobiology.

BROOM, D.M., 1975. Aggregation behavior of the brittle-star Ophiothrix fragilis. J. mar. biol. Ass. UK, 55: 191-197.

CHAUVEL, J.P., 1973. Les echinodermes cystoides de l'Ordovicien de Capo de Penas (Asturias). Breviora Geol. Asturica 1973, no. 2.

, B. MELENDEZ, and LeMENN, in press. Les echinodermes (cystoides et crinoïdes) de l'Ordovicien supérieur de Luesma (Sud de l'Aragon, Espagne).

, in press. Echinodermes Rhombiferes de l'Ordovicien du Maroc.

CHIA, F.S. and D. ATWOOD and B. CRAWFORD, 1975. Comparative morphology of echinoderm sperm and possible phylogenetic implications. Amer. Zool. 15: 533-565.

and H. AMERONGEN, 1975. On the prey-catching pedicellariae of a starfish, Stylasterias forreri (de Loriol). Canadian Jour. of Zool. 53 (6): 748-755.

CLARK, A.M., 1975. The Swain Reefs Expedition: Crinoidea. Rec. Aust. Mus. 29 (13): 391-406.

, 1976. Ophiura Lamarck, 1801 and Ophioderma Muller & Troschel, 1840: Revised proposals for stabilization. Bull. Zool., Nomencl. 32 (4).

, in press. Echinoderms of coral reefs. Chapter 3. Biology and Geology of Coral Reefs (O.A. Jones and R. Endean, eds). Biol. 2: 95-123.

and J. COURTMAN-STOCK, in press. The Echinoderms of southern Africa. Publ. British Museum (Nat. Hist.).

and R.V. MELVILLE, 1976. Ophiolepis Muller & Troschel, 1840: Request for designation of a type-species under the Plenary Powers. Bull. Zool. Nomencl. 32 (4).

COLOMERA, D., 1974. Chromosome evolution in the phylum Echinodermata. *Z. Zool. Syst. Evolut.-Forsch.* 12 (1974): 299-308.

COLVIN, A.L., L.H. COLVIN, and R.G. SUMMERS, 1974. The acrosomal region and the beginning of fertilization in the holothurian, *Thyone briareus*. In: *The Functional Anatomy of the Spermatozoon*. p. 27. (Afzelius, B.A., ed.). Pergamon Press, New York.

CRAPP, G.B. and M.E. WILLIS, in press. Age determination in the sea urchin *Paracentrotus lividus* (Lamarck), with notes on the reproductive cycle. *J. exp. mar. Biol. Ecol.*, 20 (2).

CRAWFORD, B.J. and F.S. CHIA, 1974. Fine structure of the mucous cell in the sea pen, *Ptilosarcus guernei*, with special emphasis on the possible role of microfilaments in the control of mucus release. *Canadian Jour. of Zool.* 52 (12): 1427-1432.

DAMBACH, M. and W. Weber, 1975. Inhibition of pigment movement by Cytochalasin B in the chromatophores of the sea urchin *Centrostephanus longispinus*. *Comp. Biochem. Physiol.* 50C: 49-52.

DAYTON, P.K., 1975. Experimental evaluation of ecological dominance in a rocky intertidal algal community. *Ecological Monographs* 45 (2): 137-159.

_____, 1975. Experimental studies of algal canopy interactions in a sea otter-dominated kelp community at Amchitka Island, Alaska. *Fishery Bulletin* 73 (2): 230-237.

DEARBORN, J.H. and F. J. FELL, 1974. Ecology of echinoderms from the Antarctic Peninsula. *Antarctic Journal of the United States*, 9 (6): 304-305.

_____, in press. Foods and feeding characteristics of Antarctic asteroids and ophiuroids. *Proc. Third Symposium on Antarctic Biology*, Washington, D.C.

DOWNEY, M.E., 1976. Asteroidea from Malpelo Island with a description of a new species of the genus *Tamaria*. *Smithsonian Contributions to Zoology*, no. 176: 86-90.

ENGEL, H., 1976. On a new echinid from the Cretaceous of Maastricht: *Scutellina supramarginalis* (Echinoidea, Gnathostomata, Clypeasteroida, Laganina, Fibulariidae). *Bulletin Zoologisch Museum Amsterdam*, 5 (7): 18-III-1976.

ELLINGTON, W.R., 1975. Glucose degradation and respiratory in starfish tissue. *Federation Proceedings* 34: 466 (ABSTRACT).

_____, 1975. Holothurian facultative anaerobiosis. *Amer. Zool.* 15: 808.

EYLERS, J.P., in press. Aspects of skeletal mechanics of the starfish Asterias forbesii. *Jour. Morphol.*

FELL, F. J., 1975. The cchinoid genus Centrostephanus in the South Pacific Ocean with a description of a new species. *Journal of the Royal Society of New Zealand*, 5 (2): 179-193.

FERGUSON, J.C., 1974. Fatty acid and carbohydrate storage in the annual reproductive cycle of Echinaster. *Comp. Biochem. Physiol.* 52A: 585-590.

_____, 1976. The annual cycle of fatty acid composition in a starfish. *Comp. Biochem. Physiol.* 54B: 249-252.

FREST, T.J., 1973. Caryocrinidae (Echinodermata: Rhombifera) of the Laurel Limestone of southeastern Indiana. *Fieldiana Geology* 30 (4): 81-106.

_____, 1975. Marsupiocrinidae of the Laurel Limestone of southeastern Indiana. *Geol. Mag.* 112 (6): 565-574.

GUILLE, A., 1974. Asterides et Ophiurides recoltees aux Iles Kerguelen par P. Grua. *Com. natl. Fr. rech. antarct.* 35: 32-44.

_____, in press. Benthic bionomy of the continental shelf of the Kerguelen Islands. *Microfauna. I. Echinoderms of the Morbihan Gulf. Quantitative data. Proc. Third Symp. Antarctic Biol.* Washington, D.C.

_____, in press. Compte-rendu de la campagne MD04/Benthos effectuee a bord du M.S. Marion-Dufresne du 14.2 au 23.3.1975: Bionomie du plateau continental des iles Kerguelen. Ichthyologie, Hydrologie, Sedimentologie. *Com. natl. Fr. rech. antarct.*

_____, and J. SOYER, in press. Eionomie benthique du plateau continental de la cote catane francaise. VII. Macrofaune et meiofaune rapports quantitatifs et biocenotiques. *Vie Milieu*.

_____, and _____, in press. Prospections bionomiques du plateau continental des iles Kerguelen. Golfe du Morbihan et Golfe des Baleiniers. *Com. natl. Fr. rech. antarct.*

_____, and J. PONGE, in press. Application de l'analyse des correspondances a l'etude des peuplements benthiques de la cote catalane francaise. *Ann. irst. Oceanogr.*, Paris.

_____, and G. CHERONNIER, in press. Sur la presence a l'ile Heard, de l'ophiure Astrophiura pernix (Sladen). *Bull. Mus. Hist. nat. Paris.*

GIERI, P.W., 1974. The impact of Acanthaster on corals and coral reefs in the Eastern Pacific. Environmental Conservation 1: 295-304.

GRUA, P., ed., 1974. Invertébrés de l'infralittoral Rocheux dans l'Archipel de Kerguelen. CNFRA, 3 (35): 1-44.

HANSEN, B., 1975. Systematics and biology of the deep-sea holothurians. Part 1. Elasipoda. Galathea Report 13: 1-262.

HAUDE, R. and LANGENSTRASSEN, F., in press. Angle teeth (goniodonts) of ophiocistioids from the Silurian, Devonian and Carboniferous. Lethaia.

_____, and _____, in press. Rotasaccus dentifer, ein neuer Ophiocistioide mit "holothuroiden" Radchen-Skleriten und "echinoidem" Kauapparat. Palaont. Zeitschr.

HAUGH, B.N., 1975. Digestive and coelomic systems of Mississippian camerata crinoids. Jour. Paleont. 49 (3): 472-493.

_____, 1975. Nervous systems of Mississippian camerata crinoids. Paleobiology, 1 (3): 261-272.

_____, 1975. Fossil evidence of dipleurula ancestry and visceral evolution of echinoderms. Geol. Soc. Amer. Meetings, Salt Lake City (ABSTRACT).

HENDLER, G., 1975. Adaptational significance of the patterns of ophiuroid development. American Zoologist, 15 (3): 691-715.

HESS, H., 1975. Mikropalaontologische Untersuchungen an Ophiuren Die Ophiuren aus den Günsberg-Schichten (obers Oxford) vom Guldental (Kt. Solothurn). Eclogae geol. Helv. 68 (3): 691-601.

_____, 1975. Mikropalaontologische Untersuchungen an Ophiuren Die Ophiuren aus den Humeralis-Schichten (Ober-Oxford) von Raedersdorf (Ht-Rhin). Eclogae geol. Helv. 68 (3): 603-612.

HIMMELMAN, J.H., in press. Phytoplankton as a stimulus for spawning in three marine invertebrates. J. exp. mar. Biol. Ecol. 1975.

HOROWITZ, A.S. and H.L. STRIMPLE, 1974. Chesterian echinoderm zonation in eastern United States. Int. Carb. Congress, Compte. Rendu, Bd. III: 207-219.

HYLANDER, B.L. and R.G. SUMMERS, 1975. An ultrastructural investigation of the spermatozoa of two ophiuroids, Ophiocoma echinata and Ophiocoma wendti. Cell and Tiss. Res. 158: 151-168.

JAMES, D.B., 1974. Note on the development of the asteroid Asterina burtoni Gray. J. Mar. biol. Ass. India, 14 (2): 883-884.

JANGOUX, M., 1975. Note sur le genre Tethyaster, Sladen (Echinodermata, Asteroides, Astropectenidae). Rev. Zool. afr. 89 (4): 761-768.

_____, C. MASSIN, et E. VAN IMPE, in press. Mise en evidence du role emonctoire des caecums rectaux d'Asterias rubens L. (Echinodermata, Asteroidea). C. R. Acad. Sci. Paris, 281: 643-646.

_____, and J.-P. V. BOSSCHE, 1975. Morphology and dynamics of the coelomocytes of Asterias rubens L. (Echinodermata, Asteroidea). Forma et Functio. 8: 191-208.

JEFFERIES, R.P.S., 1975. Fossil evidence concerning the origin of the chordates. Symp. zool. Soc. London, 36: 253-318.

KANATANI, H., 1974. Mechanism of oocyte maturation and gamete release in starfishes. II. Maturation-inducing substance. Zool. Mag. (Tokyo), 83: 125-134.

_____, 1974. Hormonal mechanism of oocyte maturation--starfish as a model system. Protein-Nucleic Acid-Enzyme, 19: 1133-1143.

_____, 1974. Presence of 1-methyl adenine in sea urchin gonad and its relation to oocyte maturation. Development and Growth and Differentiation, 16 (3): 159-170.

KEIZER, P.D. and P.G. WELLS, 1975. The effectiveness and toxicity of the oil dispersant, oilsperser 43, in large outdoor tanks. Surveillance Report Canadian EPS 5-AR-75-8.

KENNEDY, B. and J.S. PEARSE, 1975. Lunar synchronization of the monthly reproductive rhythm in the sea urchin Centrostephanus coronatus Verrill. J. exp. mar. Biol. Ecol. 17: 323-331.

KIER, P.M., 1975. The echinoids of Carrie Bow Cay, Belize. Smithsonian Contributions to Zoology, 206.

KOBAYASHI, N., 1973. Studies on the effects of some agents on fertilized sea urchin eggs, as a part of the basis for marine pollution bioassay. Publ. Seto Mar. Biol. Lab. 21 (2): 109-114.

_____, 1974. Marine pollution bioassay by sea urchin eggs; an attempt to enhance accuracy. Publ. Seto Marine Biol. Lab. 21: 377-391.

_____, 1974. Bioassay data for marine pollution using sea urchin eggs, 1972 and 1973. Ibid., 21: 411-432.

KOGO, I. and M. YANADA, 1974. Crinoidea, in "Systematic Zoology" (T. Uchida, ed., in Japanese): Vol. 8 (Mid.) Echinodermata, 27-80. Nakayama Shoten, Tokyo.

KOLATA, D.R., 1975. Middle Ordovician echinoderms from northern Illinois and southern Wisconsin. *Paleo. Soc. Mem.* 7, 74 pp.

_____, in press. Crinoids from the Upper Ordovician Bighorn Formation of Wyoming. *Jour. Paleont.*

KOMATSU, M., 1975. On the development of the sea-star, Astropecten latespinosus Meissner. *Biol. Bull.*, 148: 49-59.

_____, 1975. Development of the sea-star Asterina coronata japonica Hayashi. *Proc. Jap. Soc. Syst. Zool.* 11: 42-48.

KRISHNAN, S. and P. SOLEMDAL, 1974. Observations on the transport of sugars in the temperate holothurian, Cucumaria frondosa. *Fisk-Dir. Skr. Ser. HavUnders.*, 16: 171-176.

_____, and T. Dale, 1975. Ultrastructural studies on the testis of Cucumaria frondosa (Holothuroidea: Echinodermata). *Norw. J. Zool.* 23: 1-15.

KUBOTA, T. and H. KANATANI, 1975. Concanavalin A: Its action in inducing oocyte maturation-inducing substance in starfish holocrine cells. *Science*, 187: 654-655.

LANE, M.G., 1975. The anal sac of Aesiocrinus, a Pennsylvanian madunate crinoid. *Journal of Paleontology*, 49 (4): 638-645.

_____, 1976. The fossils called Indian Beads. *Outdoor Indiana*. March: 14-17.

_____, and A. BREIMER, 1974. Arm types and feeding habits of Paleozoic crinoids. *Akademie van Wetenschappen, Amsterdam*, 7 (1): 32-39.

_____, and D.B. MACURDA, JR., 1975. New evidence for muscular articulations in Paleozoic crinoids. *The Paleontological Society*, 1 (1): 59-62.

LARRAIN FRAT, A.P., 1975. Los Equinoideos Regulares Fósiles Recientes de Chile. *Gayana*, 35.

LAURENCE, J.M., 1973. Temperature tolerances of tropical shallow-water echinoids (Echinodermata) at Elat (Red Sea). *Israel Journal of Zoology*, 22: 143-150.

_____, 1975. The effect of temperature--salinity combinations on the functional well-being of adult Lytechinus variegatus (Echinodermata, Echinoidea). *Biol. Ecol.* 18: 271-275.

_____, 1975. On the relationships between marine plants and sea urchins. *Oceanogr. Mar. Biol. Rev.* 13: 215-286.

LECLERC, M., 1973. Etudes ultrastructurales des réactions d'Asterina gibbosa (Echinoderme Asteride) au niveau de l'organe axial après injection de diverses protéines. *Ann. d'Immuno*. 124C.

LOWE, E.W. and J. LAWRENCE, 1976. Absorption efficiencies of Lytechinus variegatus (Lamarck) (Echinodermata: Echinoidea) for selected marine plants. *J. exp. mar. Biol. Ecol.*, 21: 223-234.

LOWENSTAM, H.A. and G.R. ROSSMAN, 1975. Amorphous, hydrous, ferric phosphatic dermal granules in Molpadia (Holothuroidea): Physical and chemical characterization and ecologic implications of the bioinorganic fraction. *Chemical Geology*, 15: 15-51.

MACKIE, R.M., H.T. SINGH, and T.C. FLETCHER, 1975. Studies on the cytolytic effects of seastar (Marthasterias glacialis) saponins and synthetic surfactants in the plaice Pleuronectes platessa. *Mar. Biol.* 29: 307-314.

MACURDA, D.B., JR., 1975. The bathymetry and zoogeography of shallow-water crinoids in the Bahama Islands. *Hydro-imb. Journal*, 3(1): 5-24.

_____, 1975. The Pentremites (Blastoidea) of the Burlington Limestone (Mississippian). *Journal of Paleontology*, 49 (2): 346-373.

_____, 1975. Skeletal modifications related to food capture and feeding behavior of the basketstar Astrophyton. *Paleobiology*, 2 (1): 1-7.

_____, and P.R. RACHEBOUF, 1975. Devonian and carboniferous spiraculate blastoids from Brittany (France). *Journal of Paleontology* 49 (5): 845-855.

MARKEL, R., 1975. Wachstum des Coronarskelettes von Paramentrotus lividus Lmk. (Echinodermata, Echinoidea). *Zoomorphologie*, 82: 259-280.

MASSIN, J. and M. JANGOUX, 1976. Observations écologiques sur Holothuria tubulosa, H. poli et H. forskali (Echinodermata, Holothuroidea) et comportement alimentaire de H. tubulosa. *Cr. Biol. mar.* 18: 45-59.

MEIJER, L. and M. JANGOUX, in press. Observations biometriques sur Radiororotula orbicularis (Linne) (Echinodermata, Echinoidea, Rotulidae). Rev. Zool. afr. 89 (3): 622-628.

MEYER, D.L. and N.G. LANE, in press. Feeding biology of basketstars and flexible crinoids. Jour. Paleont.

MILEIKOVSKY, S.A., 1974. On predation of pelagic larvae and early juveniles of marine bottom invertebrates by adult benthic invertebrates and their passing alive through their predators. Marine Biology, 26: 303-311.

MIRONOV, A.N., 1974. New species of abyssal sea urchins of the genus Echinosigra (Echinoidea, Pourtalesiidae). Zoology Journal, Akademia Nauk SSSR, 53 (12): 1803-1806.

_____, 1975. Deep-sea urchins (Echinodermata, Echinoidea) collected during the 14th Cruise of the R/V "Akademik Kurchatov". Trudy Instituta Oceanologii, Akademia Nauk SSR, 103: 261-288.

_____, 1975. Mode of life of the pourtalesiid sea-urchins (Echinoidea: Pourtalesiidae). Ibid. 100: 205-214.

MISCHER, B., 1975. Zur morphologie und regeneration der Hohlstacheln von Diadema antillarum Philippi und Echinothrix diadema (L.) (Echinoidea, Diadematidae). Zoomorphologie, 82: 243-258.

NESTLER, H., in press. Echiniden aus dem Unter-Maastricht der Insel Rugen. V. Die postlarvale Entwicklung der cidariden. Z. Geol. Wissenschaft. Berlin.

_____, in press. Die Fossilien der Rugener Schreibkreide. Kap. 4, 11: Echinodermata. Die Neue Brehm-Bucherei, Ziemsen-Verlag Lutherstadt Wittenberg.

OLDFIELD, S.C., 1975. Surface fine structure of the globifercus pedicellariae of the regular echinoid, Psammechinus miliaris Gmelin. Cell Tiss. Res. 162: 377-385.

OHTA, S., 1975. An attempt of ecological observation and density estimation of ophiuroid and other megalio-epibenthos by means of underwater photography. Benthos Research 9/10: 33-38 (in Japanese).

_____, in press. A precise and continuous monitoring system of the distance between the near-bottom instruments and the seafloor.

PAPSLY, R.I., 1975. Systematics and functional morphology of *Colombocystis*, a Middle Ordovician "cystidean" of uncertain affinities. *Bull. American Paleont.* 67: 349-361.

_____, and L.W. MINTZ, 1975. North American Paracystidea (Ordovician: Paracystidea, new, Echinodermata). *Ibid.*, 68: 1-15.

PAUL, C.R.C., 1974. *Regulæ cystis Devonica*, a new Devonian Plectocystitid cystid from Devon. *Geol. Mag.* 111 (4): 349-352.

_____, 1975. A reappraisal of the Paradigm Method of functional analysis in fossils. *Lethaia*, 7: 15-21.

_____, in press. Paleogeography of Ordovician echinoderms. International Symposium on the Ordovician System, Birmingham, England, 1974.

_____, in press. Ordovician echinoderms from Greenland. *Geol. Mag.*

PAWSON, D.L., G.D. DONNAY, and I.M. HEY, 1975. Iron phosphate deposits in olpadiid holothurians (Echinodermata: Holothuroidea). *Biomineralisation* Forschungsberichte 8: 16-20.

_____, in press. Molpadiid holothurians of the southern Atlantic, Pacific, and Indian Oceans. *Antarctic Research Series*.

_____, in press. Two new sea cucumbers (Echinodermata: Holothuroidea) from the eastern United States. *Proc. Biol. Soc. Washington*.

_____, in press. Shallow-water sea cucumbers (Echinodermata: Holothuroidea) from Carrie Bow Cay, Belize. *Ibid.*

PEARSE, J.S., 1974. An echinoderm dominated area adjacent to a giant kelp forest off Santa Cruz, California. *Western Soc. Naturalists*, 55th Annual Meeting, p. 13 (ABSTRACT).

_____, 1975. Lunar reproductive rhythms in sea urchins: A review. *J. Interdiscipl. Cycle Res.* 6: 47-52.

POLLS, E. and J. GONOR, 1975. Behavioral aspects of rigidity in two asteroids from the Pacific Coast of North America. *Biological Bulletin*, 148 (1): 3-83.

POWELSON, E.E., M.A. GATES and J. Berger, 1975. A biometrical analysis of 22 stocks of four syngens of Paramecium aurelia. Canadian Journal of Zoology, 53 (1): 19-32.

PRIM, P. and J.M. Lawrence, 1975. Utilization of marine plants and their constituents by bacteria isolated from the gut of echinoids (Echinodermata). Marine Biology 33: 167-173.

PROKOP, R., 1975. The genus Ichthyocrinus Conrad, 1842, in the Lower Devonian of Bohemia (Crinoidea). Cas. min. geol. 20(4): 417-421.

_____, in press. The genus Edriocrinus Hall, 1859, from the Devonian of Bohemia (Crinoidea). Cas. min. geol. 1976 no. 1, Praha.

RAO, G.C., 1975. On a new interstitial species of Trochodata (Apodida, Holothuroidea) from Andamans, India. Curr. Sci. 44 (14): 508-509.

ROMAN, J.P., 1973. Etudes paleontologiques et geologiques sur les falaises de Fresco (Cote d'Ivoire). 6. Echinides. Ann. Fac. Sci. Dakar, s.t. 26: 139-172.

_____, in press. Echinides eocenes et miocenes du Qatar (Golfe Persique). Annales de Paleontologie, Invertebrés (Paris).

_____, in press. Echinides cretaces et paleocenes du Sahara algerien. Editions du C.N.R.S. (Centre de Rech. sur les Zones arides).

_____, in press. Biographie et liste des publications de Jules Lambert. Bull. Soc. geol. France. (avec M. Collignon et D. Pajaud).

ROSE, E.P.F., 1974. Stratigraphical and facies distribution of irregular echinoids in Miocene limestones of Gozo, Malta, and Cyrenaica, Libya. Memoirs du B.R.G.M. 78 (1): 349-355.

_____, 1974. The Miocene Echinoidea of Libya: A summary and review of their stratigraphical distribution. Memoires du B.R.G.M. 78 (1). 341-347.

_____, 1975. Oligo-Miocene echinoids of the Maltese Islands. Proc. VIV Congress Regional Committee on Mediterranean Neogene Stratigraphy, Bratislava, 1975, vol. 1, pp. 75-79.

ROUX, M., 1974. Les principaux modes d'articulation des ossicules du squelette des crinoïdes pedoncules actuels. *C.R. Acad. Sci. Paris*, v. 278, ser. D., pp. 2015-2018.

ROWE, F.W.E., 1974. Catalogue of the Sladen Collection in the Royal Albert Memorial Museum, Exeter, Devon. *Biological Journal of the Linnean Society*, 6 (3): 179-243.

_____, and A.M. CARK, 1975. Notes on some echinoderms from Marion Island. *Bull. Br. Mus. nat. Hist. (Zool.)* 28 (5): 187-190.

SATO, H., 1973. The Mitotic Spindle. Aging Gametes. *Int. Symp.*, Seattle, pp. 19-49.

SERAFY, D.K., 1971. A new species of Clypeaster (Echinodermata, Echinoidea) from San Felix Island, with a key to the Recent species of the eastern Pacific Ocean. *Pacific Science*, 25 (2): 167-170.

SHIRAI, H., 1974. Effect of l-phenylalanine on l-methyl adenine production and spontaneous maturation in starfish. *Exptl. Cell Research*, 87: 31-38.

SIBUET, M., 1974. Echinoderms de la mer d'Alboran. *Bull. Mus. Hist. nat. Paris* 155 (3): 789-798.

_____, in press. Asterides abyssales de l'Atlantique Sud. (Resultats de la campagne Nalda 1971). *Ibid.*, 199 (3): 289-298.

SINGLETARY, R.L., 1975. A new species of brittle star from Florida. *Florida Scientists* 36 (2-4): 175-178.

_____, and H.B. MOORE, 1974. A redescription of the Amphioplus coniortodes - Ophionephthys limicola community of Biscayne Bay, Florida. *Bull. Mar. Sci.* 24 (3): 690-699.

SPRINKLE, J., 1975. Biostratigraphy and paleoecology of Cambrian echinoderms from the Rocky Mountains. *Geol. Soc. America Abstracts with programs* 7 (7) (ABSTRACT).

_____, 1975. The "arms" of Caryocrinites, a rhombiferan cystoid convergent on crinoids. *Jour. Paleontology* 49 (6).

_____, 1976. Classification and phylogeny of "pelmatozoan" echinoderms. *Systematic Zoology* 25.

STRATHMANN, R.R., 1975. Limitations on diversity of forms: branching of ambulacral systems of echinoderms. *American Naturalist*, 109: 177-190.

_____, in press. Feeding biology of echinoderm larvae. *American Zoologist*.

_____, in press. Introduction to larval biology of echinoderms. *Thalassia Jugoslavica*.

STRENGER, A., 1973. Sphaerechinus granularis: Violetter Seeigel. Anleitung zur makroskopischen Untersuchung. Grosses Zoologisches Praktikum vol. 18. Fischer, Stuttgart.

STRIMPLE, H.L., 1974. A preliminary study of echinoderms with the aid of a scanning electron microscope. *Proc. Iowa Acad. Sci.* 81: 51-55.

_____, 1974. Abyssocrinus from the Maragan Formation (Devonian) of southern Oklahoma. *Okla. Geol. Notes* 34: 160-162.

_____, 1975. The crinoid genus Syncaulocrinus from Iowa. *Proc. Iowa Acad. Sci.* 81: 116-118.

_____, 1975. Megaliocrinus johnsoni, new camerate crinoid species from Middle Pennsylvanian rocks of Illinois. *Proc. Iowa Acad. Sci.* 81: 119-121.

_____, 1975. A rare inadunate crinoid from the Barnsdall Formation (Upper Pennsylvanian) of Oklahoma. *Okla. Geol. Notes* 35: 23-26.

_____, 1975. Crinoids of Atokan age from Oklahoma and Missouri. *Paleo. Contr. Paper* 76: 30 p.

_____, in press. Crowns of Paracrinus from Oklahoma and Tennessee. *Okla. Geol. Notes*.

_____, in press. Erisocrinids (Ornoidea-Inadunata) from Middle Pennsylvanian rocks of Iowa and Colorado. *Proc. Iowa Acad. Sci.*

_____, in press. New Chesterian crinoids from Illinois. *Paleo. Contr.*

_____, in press. A Morrowan crinoid fauna from the Hueco Mountains of Texas. *Jour. Pal. Ont.*

_____, in press. Petalambicrinus, a new crinoid genus from the Missourian of Texas. Jour. Paleont.

_____, in press. Bottom dwelling hyocrinids from Kentucky. Southeastern Geology.

_____, in press. The Silurian inadunate crinoid genus Thalamocrinus from Tennessee. Southeastern Geology.

_____, in press. Upper Carboniferous crinoids of northwest Spain. Jahrbuch für Geologie und Paläontologie, Monatshefte.

_____, and W.W. NASSICHUK, 1974. Pennsylvanian crinoids from Ellesmere Island, Arctic Canada. Jour. Paleont. 48: 1149-1155.

SUAREZ, A.M., 1974. Lista De Equinodermos Cubanos Recientes. Investigaciones Marinas Universidad de la Habana 8 (6).

SUMMERS, R.G. and B.L. HYLANDER, 1974. An ultrastructural analysis of early fertilization in the sand dollar, Echinorachnus parma. Cell Tiss. Res. 150: 343-368.

_____, and _____, in press. Species-specificity of acrosome reaction and primary gamete binding in echinoids. Exp. Cell Res.

_____, _____, A.L. COLWIN, and L.H. COLWIN, in press. Functional anatomy of the echinoderm spermatozoon and its interaction with the egg at fertilization. Amer. Zool.

THOMAS, L.P., 1975. The ophiacanthid genus Amphilimna. Proc. Biol. Soc. Wash. 88: 127-139.

_____, 1975. The systematic relationships of Ophioplacus, Ophioceramis, and Ophioceres. Bull. Mar. Sci., 25 (2): 232-247.

TORTONESE, E., 1975. L'echinoide Centrostephanus longispinus en Mediterranee Nord-Occidentale. Museo Civico Di Storia Naturale Di Genova, 70: 238-240.

TURNER, R.L., 1976. Sexual difference in latent period of spawning following injection of the hormone 1-methyladenine in Echinaster (Echinodermata: Asteroidea). Gen. Comp. Endocrinol.

and J.C. RUTHERFORD, 1975. Caloric content and organic composition of eggs and pentaculae of the brooding holothuroid Cucumaria curata. Amer. Zool. 15: 787.

UBAGHS, G., 1975. Early Paleozoic echinoderms. Annual Rev. Earth Planetary Sci. 3: 79-98.

WALKER, C.W., 1975. Studies on the reproductive system of sea-stars. II. The morphology and histology of the gonoduct of Asterias vulgaris. Biol. Bull. 148.

WARNER, G.F. and J.D. WOODLEY, 1975. Suspension-feeding in the brittle-star Ophiothrix fragilis. J. mar. biol. Ass. UK, 55: 199-210.

WEBER, J.N., 1973. Temperature dependence of magnesium in echinoid and asteroid skeletal calcite: A reinterpretation of its significance. Journ. Geol., 81: 543-558.

WEBSTER, S.K. and A.C. GIESE, 1975. Oxygen consumption of the purple sea urchin with special reference to the reproductive cycle. Biol. Bull. 148: 165-180.

WHITE, E.W., J.N. WEBER, and R.A. WHITE, 1975. Microporous biomedical implant materials from echinoderm skeletal structures. U.S. Patent No. 3,890,107.

YAMAGUCHI, M., 1974. Growth of juvenile Acanthaster planci (L.) in the laboratory. Pacific Science, 28 (2): 123-138.

_____, 1974. Effect of elevated temperature on the metabolic activity of the coral reef asteroid Acanthaster planci (L.). Pacific Science, 28 (2): 139-146.

_____, 1975. Sea level fluctuations and mass mortalities of reef animals in Guam, Mariana Islands. Micronesica, 11 (2): 227-243.

_____, 1975. Coral reef asteroids of Guam. Biotropica, 7 (1): 12-23.

_____, in press. Estimating growth parameters from growth rate data: Problems with marine sedentary invertebrates. Oecologia, 20: 321-332.

YULIN, L., 1975. The echinoderms of Xisha Islands. I. Holothurioidea, Guangdong Province, China. *Studia Marina Sinica*, 8 (10): 200-230.

ZAKVODNIK, D., 1971. Contribution to the dynamics of benthic communities in the region of Rovini (Northern Adriatic). *Thalassia Jugoslavica*, 7 (2): 477-514.